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SENSITIVE

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SUBJECT: THE POTENTIAL FOR SHALE GAS DEVELOPMENT IN CHINA

REF: SECSTATE 111742

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11. (SBU) Summary: There is significant potential for shale gas development in China. Total resources are estimated to be 100 trillion cubic meters. Shale gas resources have been studied for the last five years and exploration began this year. The Chinese government and state-owned enterprises are heavily involved in research and exploration as they probably will be in production. Foreign firms must form joint ventures with one of the SOEs to undertake development in the oil and gas sector. But as demand for energy has increased, foreign partners have become more welcome and there is a need for foreign expertise in geologically complex extraction technology. Natural gas usage in China has increased rapidly in recent years and the Chinese government plans to increase the share of natural gas in total energy consumption to 10 percent by 2020. This cable provides responses to questions posed in Reftel SECSTATE 111742. End Summary.

12. (SBU) Are there gas-bearing shale formations?

According to the National Energy Administration, total shale gas resources in China are estimated to be 100 trillion cubic meters and are widely distributed in the Songliao, Erdos, Turpan-Hami, and Junggar basins, as well as other regions (marine strata) in the South. It is estimated 15 to 30 trillion cubic meters of the total are distributed in these major basins and regions; the mean value of these estimates is 23.5 trillion cubic meters. The U.S. Energy Information Administration reportedly estimates that by 2035, shale gas could represent 62 percent of the total gas produced in China.

13. (SBU) Are energy companies exploring for shale gas?

The shale gas industry in China is in its infancy. The first shale gas exploration project began in October 2009 and is being undertaken by the Ministry of Land Resources in Qijiang County, Chongqing Municipality.

China National Petroleum Corporation (CNPC), a state-owned enterprise (SOE), started studying shale gas resources in 2005 with petroleum companies from the U.S. and other countries. In September 2009 the National Energy Administration said CNPC is currently preparing to pilot test production. It is estimated that shale gas production in the test areas will reach 1 billion cubic meters per year between 2011 and 2015.

The Harding Shelton Group from Oklahoma is working with CNPC/PetroChina's Research Institute of Petroleum Exploration Development (RIPED) to identify exploration opportunities. The U.S. company has also agreed with Yangtze University to open the Yangtze University Harding Shelton Shale Gas Research Center. SINOPEC, another SOE, also has shale gas rich reservoirs on its land and is

seeking technical cooperation with U.S. companies on shale gas exploration and production.

14. (SBU) What kind of data/surveys are available on gas-bearing shale?

The Ministry of Land and Resources' Strategic Research Center for Oil and Gas Resources and the China University of Geosciences (Beijing) began studies on shale gas resources as far back as 2004. In July 2009, the Department of Energy announced the creation of the U.S.-China Clean Energy Research Center, which will concentrate on building energy efficiency, clean coal including carbon capture and storage and clean vehicles. Shale gas development has also been identified as an area of interest.

15. (SBU) What is the regulatory environment for oil and gas development? What are the relevant host-government policies with regard to land use and water use?

Responsibility for oil and gas development regulation is currently split among a number of institutions. For the entire sector, this bureaucratic disorder has historically impeded coordination across ministries, as well as held back the formulation, implementation and enforcement of energy policies. Of the more than one dozen government agencies with authority in the energy sector, the most important is the National Development and Reform Commission (NDRC). The three large state-owned energy companies or SOEs (Sinopec, CNPC/PetroChina, and China National Offshore Oil Corporation (CNOOC)) also play a quasi-official role in initiating major energy projects and proposing policies, with the government subsequently adopting or approving what the SOEs have already initiated. In recent years, there has been discussion of creating of a ministry of

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energy (the last one having been abolished in 1993). Opposition to doing so has been led by NDRC and the SOEs.

The latest in a series of bureaucratic reforms aimed at improving energy policies and regulations took place in March 2008 when the National People's Congress (NPC) approved the creation of the National Energy Commission (NEC), which replaced the Energy Leading Group within the State Council. The National Energy Administration (NEA), which replaced NDRC's Energy Bureau and other energy offices, was also created. The NEC's mandate is to improve policy coordination and draft a national energy development strategy and the NEA handles NEC's daily affairs. Analysts believe that this bureaucratic reshuffling is unlikely to substantially improve energy policy-making. As it stands today, foreign firms must form joint ventures with one of the SOEs to undertake development in the oil and gas sector. But as demand for energy is booming, the government has become more receptive to foreign partners.

16. (SBU) Does China have the infrastructure to support this type of exploration/production? Are international energy companies operating in country? Is there the capacity to build and maintain drilling rigs? Are there oilfield service companies in country?

SOEs, private Chinese companies, and foreign companies account for about 66 percent, 19 percent, and 15 percent of the oil and gas equipment market respectively. Most equipment is therefore sourced domestically but there is a need for foreign expertise in geologically complex extraction technology. The September 2009 U.S.-China bilateral Oil and Gas Investment Forum featured "unconventional gas" (including shale gas) as a major focus, and there appeared to be strong Chinese interest in technical/commercial cooperation in exploiting shale gas and other unconventional gas resources.

17. (SBU) What is China's energy mix? What is natural gas' role? Is there potential for expanding its use in power or transport?

Coal is the major source of primary (or unprocessed) energy consumed in China (68.7 percent in 2008). Oil is the second-largest, accounting for 18 percent. Hydropower, nuclear power and wind power account for another 9.5 percent. Natural gas is comparatively small, representing only 3.8 percent of China's energy consumption

in 2008. This share is slowly increasing and in absolute numbers, natural gas usage in China has increased rapidly in recent years. The Chinese government has supported the initial development and utilization of clean energy in general. Natural gas (including liquid natural gas or LNG), has attracted a lot of attention. The NEA has repeatedly expressed to the Department of Energy strong interest in learning how the U.S. built its gas distribution system.

China wants a distribution system to match its LNG sector growth plans.

The recent growth of natural gas consumption can be attributed to all sectors: industrial, petrochemical, power, and residential. Based on CNPC estimates, in 2008, industry usage accounted for 30.5 percent of total natural gas consumption, the petrochemical sector 31.5 percent, urban residential usage 28 percent and the power sector 10 percent. According to SINOPEC, data released in 2007 show that natural gas consumption by the industrial and petrochemical sectors has been decreasing since 2000. The use of natural gas in power generation has been increasing, by 4.1 percent in 2000 and about 10 percent in 2008. The use of natural gas in transportation (mainly taxis and public transit) has also been increasing, primarily due to government support. Sichuan, a province rich in natural gas, has more potential for using natural gas in transportation than in other sectors. Analysts believe that future gas growth will be led by the power and residential/commercial sectors.

According to China's 11th Five-Year Plan, natural gas consumption will reach 5.3 percent of China's primary energy consumption in 2010. The Chinese government also plans to increase this share to 10 percent by 2020. The U.S. Energy Information Administration estimates that China's natural gas demand will nearly triple by 2030.

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